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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,573	11/02/2001	Michael H. Zimmerman	60 SD 00806	2732
21269	7590	02/18/2004	EXAMINER	
PEPPER HAMILTON LLP ONE MELLON CENTER, 50TH FLOOR 500 GRANT STREET PITTSBURGH, PA 15219			LANGEL, WAYNE A	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT

PAPER NUMBER

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire _____ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-18 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-18 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of Reference Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over French 2686101. French 2686101 discloses a method for preparing cubic boron nitride by converting hexagonal boron nitride at high pressures and temperatures in the presence of at least one additive element which may be aluminum, silicon or titanium. (See the English Abstract.)

Claims 1 and 3-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over British 2058840. British 2058840 discloses a method

for preparing polycrystalline cubic boron nitride by treating boron nitride at high temperatures and pressures in the presence of a transition metal nitride such as titanium nitride. (See the Abstract.)

Claims 1-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the Abstract of Japanese 358060604. The Abstract of Japanese 358060604 discloses the conversion of hexagonal boron nitride to cubic boron nitride at high temperatures and high pressures in the presence of such catalysts as silicon, aluminum, aluminum nitride, and calcium nitride.

Claims 1 and 3-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the Abstract to the article by Sato et al. ("Effect of Oxygen on the Growth of Cubic Boron Nitride Using Magnesium Nitride (Mg_3N_2) as catalyst"). The Abstract of the Sato et al. article discloses the synthesis of cubic boron nitride from hexagonal boron nitride under high pressure and high temperature using magnesium nitride as catalyst.

Claims 1 and 3-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Farafontov et al. Farafontov et al. disclose at column 1, lines 13-21 the high temperature-high pressure treatment of hexagonal boron nitride to prepare polycrystalline

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cubic boron nitride in the presence of tin, lead, antimony, or nitrides of such metals.

Claims 1-4 and 7-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Taylor et al. Taylor et al. discloses a method for converting boron nitride from the hexagonal to the cubic form at high temperatures and pressures in the presence of elemental aluminum. (See the Abstract and column 2, lines 37-54.)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) The invention was described in (1) an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 7-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shioi et al. '996. Shioi et al. '996 discloses a method for converting hexagonal boron nitride to cubic boron

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nitride under high temperature and pressure conditions in the presence of a silicon source. (See column 1, lines 41-58.)

Claims 2 and 4-6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of "one or more of . . . or" in claims 2, 5 and 6 renders the scope of the claims vague and indefinite. The phrase should be changed to --at least one member selected from the group consisting of . . . and-- to avoid this rejection. Claims 5 and 6 are further indefinite in being inconsistent from claim 2 from which they depend, since claim 2 requires that the oxygen getter be one or more of aluminum, silicon and titanium, whereas claims 5 and 6 recite that the oxygen getter be an elemental metal, metal carbide or metal nitride.

The other references are made of record for disclosing methods for converting hexagonal boron nitride to cubic boron nitride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-0994.

WAL:cdc

January 30, 2004

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER